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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,179	04/24/2007	Bernhard Gellrich	LO29-033	4031
21567 7590 06/10/2010				
WELLS ST. JOHN P.S.				
601 W. FIRST AVENUE, SUITE 1300				
SPOKANE, WA 99201				
EXAMINER				
RIDDLE, CHRISTINA A				
ART UNIT		PAPER NUMBER		
2882				
MAIL DATE		DELIVERY MODE		
06/10/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/580,179

Applicant(s)

GELLRICH ET AL.

Examiner

Christina Riddle

Art Unit

2882

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/12/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-99 is/are pending in the application.
- 4a) Of the above claim(s) 75-78 and 81-99 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 39-74, 79 and 80 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date _____
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgement is made that the instant application is a national stage entry of PCT/EP04/13228 filed on 11/22/2004, which is a continuation-in-part of 10/719683 filed on 11/24/2003, and PCT/EP04/13228 claims priority from DE 10356730.5 filed on - 12/2/2003.
2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 12/2/2003. It is noted, however, that applicant has not filed a certified copy of the DE 10356730.5 application as required by 35 U.S.C. 119(b).

Election/Restrictions

3. Applicant's election without traverse of Group I in the reply filed on 2/12/2010 is acknowledged.
4. Claims 75-78 and 81-99 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 2/12/2010. Claims 39-74, 79, and 80 are currently pending examination.

Claim Objections

5. Claim 67 is objected to because of the following informalities:
 - a. Claim 67, line 2, "the neutral fiber" should be changed to --a neutral fiber--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 39-42, 44-49, 51, 52, 54-56, 59, 71-74 are rejected under 35 U.S.C. 102(b) as being anticipated by Schuster (US Patent No. 6,417,974).

Regarding claim 39, Schuster discloses a holding device for an optical element (last optical element 1, Figs. 1-6) in an objective (objection 10, Fig. 6) having a mount that is connected (Fig. 6, the mounts support the optical elements including optical element 2 and last optical element 1), on the one hand, to the objective (Fig. 6, the mounts are directly connecting the objective 10), and on the other hand, at least indirectly to the optical element (Fig. 6, last optical element 1 is connected to the mount through optical element 2), there being arranged between the mount and the optical element a reinforcing element (Figs. 1-6 and col. 3, lines 22-39, optical element 2 reinforces last optical element 1 since the lower surface of optical element 2 is shown to be supporting the upper surface of last optical element 1. Further, in Figs. 1-6, it is clear that optical element 2 supports last optical element 1 via other intervening materials such as thin layer 3 in Fig. 3. Col. 3, lines 22-39 disclose that there are two optical elements: optical element 1 and 2, that are connected to each other such that optical 2

reinforces optical 1) whose coefficient of thermal expansion corresponds substantially to the coefficient of thermal expansion of the optical element (col. 3, lines 44-49 and 64-67 and col. 4, lines 1-3, last optical element 1 and optical element 2 are made of materials with substantially corresponding thermal expansion).

Regarding claim 40, Schuster discloses wherein a seal or gasket is arranged between the optical element and the reinforcing element (Figs. 2 and 3, thin layer 3 is arranged between optical elements 1 and 2).

Regarding claims 41 and 42, Schuster discloses wherein the reinforcing element and the optical element are composed of the same material (col. 3, lines 31-39, 44-49, and col. 3, line 64-col. 4, line 3, optical elements 1 and 2 are made of CaF_2 , MgF_2 , or NaF).

Regarding claim 44, Schuster disclose wherein the reinforcing element and the optical element consist of CaF_2 (col. 3, lines 31-39, elements 1 and 2 are made of CaF_2).

Regarding claims 45, 46, and 47, Schuster discloses wherein the optical element and the reinforcing element are connected to one another by a wrung connection (col. 3, lines 29-30, elements 1 and 2 are connected by wringing).

Regarding claim 48, Schuster discloses wherein the optical element and the reinforcing element in each case have substantially flat surfaces in the region of the wrung connection (Figs. 2 and 3, elements 1 and 2 have flat surfaces in the region of their connection).

Regarding claim 49, Schuster discloses wherein the optical element and the reinforcing element in each case have spherical surfaces in the region of the wrung connection (Fig. 6, elements 1 and 2 have spherical surfaces in the region of the wrung connection).

Regarding claim 51, Schuster discloses wherein the optical element and/or the reinforcing element are provided with a protective layer in the region of the wrung connection (Fig. 3 and col. 3, lines 47-49, a layer of SiO₂ or Al₂O₃ is provided on wringing surface 4 of optical element 1).

Regarding claim 52, Schuster discloses wherein the optical element and/or the reinforcing element are provided with a protective layer in the region of the wrung connection (Fig. 3 and col. 3, lines 47-49, a layer of SiO₂ or Al₂O₃ is provided on wringing surface 4 of optical element 1 and col. 29-30, elements 1 and 2 are connected by wringing) and wherein a seal or gasket is arranged between the optical element and the reinforcing element (Figs. 2 and 3, thin layer 3 is arranged between optical elements 1 and 2).

Regarding claims 54 and 55, Schuster discloses wherein the optical element and the reinforcing element are connected to one another by bonding (col. 29-30, elements 1 and 2 are bonded by wringing).

Regarding claim 56, Schuster discloses wherein the optical element and the reinforcing element are connected to one another by bonding (col. 29-30, elements 1 and 2 are bonded by wringing) and wherein the optical element and/or the reinforcing element are provided with a protective layer in the region of the bonding connection

(Fig. 3 and col. 3, lines 47-49, a layer of SiO₂ or Al₂O₃ is provided near the bonding of elements 1 and 2).

Regarding claim 59, Schuster discloses wherein the optical element and the reinforcing element are designed in one piece with one another (col. 3, line 64-col.4, line 3, elements 1 and 2 are connected together in one piece).

Regarding claims 71 and 72, Schuster discloses wherein the optical element is designed as a terminating element (Fig. 6, last optical element 1 is the final optical element in the objective).

Regarding claim 73, Shuster discloses an objective (objective 10, Fig. 6) having an optical element (last optical element 1, Fig. 6) and having a holding device for an optical element (last optical element 1, Figs. 1-6) in an objective (objection 10, Fig. 6) having a mount that is connected (Fig. 6, the mounts support the optical elements including optical element 2 and last optical element 1), on the one hand, to the objective (Fig. 6, the mounts are directly connecting the objective 10), and on the other hand, at least indirectly to the optical element (Fig. 6, last optical element 1 is connected to the mount through optical element 2), there being arranged between the mount and the optical element a reinforcing element (Figs. 1-6 and col. 3, lines 22-39, optical element 2 reinforces last optical element 1 since the lower surface of optical element 2 is shown to be supporting the upper surface of last optical element 1. Further, in Figs. 1-6, it is clear that optical element 2 supports last optical element 1 via other intervening materials such as thin layer 3 in Fig. 3. Col. 3, lines 22-39 disclose that there are two optical elements: optical element 1 and 2, that are connected to each other such that

optical 2 reinforces optical 1) whose coefficient of thermal expansion corresponds substantially to the coefficient of thermal expansion of the optical element (col. 3, lines 44-49 and 64-67 and col. 4, lines 1-3, last optical element 1 and optical element 2 are made of materials with substantially corresponding thermal expansion).

Regarding claim 74, Schuster discloses the objective as claimed in claim 73, which is a designed as a lithography objective (Fig. 6 and col. 3, lines 22-28, the objective is in a lithography apparatus).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claim 41 above, and further in view of Nishikawa (US PGPub 2003/0147155).

Regarding claim 43, although Schuster discloses wherein the reinforcing element and the optical element consist of the same material, Schuster does not appear to explicitly describe that the elements consist of SiO₂.

However, Nishikawa discloses elements consisting of SiO₂ (para. [0112], the optical element is made of quartz).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included SiO₂ as taught by Nishikawa as the material for the reinforcing element and the optical element in the holding device as taught by Schuster since SiO₂ is commonly used to manufacture optical elements since quartz is optically transparent to illumination light.

10. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claim 45 above, and further in view of Brunotte et al. (WO 2002/093257, Brunotte hereinafter).

Regarding claim 50, although Schuster discloses a wrung connection between the optical element and the reinforcing element (col. 29-30, elements 1 and 2 are connected by wringing), Schuster does not appear to explicitly describe aspheric surfaces in the region of the connection.

Brunotte discloses aspheric surfaces in the region of the connection (Fig. 2, element 144 has an aspheric shape in the region of the connection to flat (i.e. not spherical) shaped actuators 151, 152, and 153).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included aspheric surfaces as taught by Brunotte in the region of the wrung connection between the optical element and the reinforcing element in the holding device as taught by Schuster since aspheric surfaces are commonly used as shapes for lens elements to allow specific control of the optical characteristics based on the determined need of the imaging system.

11. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claim 51 above, and further in view of Moran et al. (US Patent No. 5,516,388, Moran hereinafter).

Regarding claim 53, although Schuster discloses a protective layer (Fig. 3 and col. 3, lines 47-49, a layer of SiO₂ or Al₂O₃ is provided on wringing surface 4 of optical element 1), Schuster does not appear to explicitly describe sol-gel materials.

However, Moran discloses sol-gel materials (col. 5, lines 23-50, a sol-gel solution is used to coat a surface for bonding, protection, and complete covering of an irregular surface).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included sol-gel materials as taught by Moran to form the protective layer for the optical element in the holding device as taught by Schuster since, as shown by Moran, sol-gel materials are commonly used to form protective layers since sol-gel materials adhere well to irregular surfaces (co. 5, lines 34-45).

12. Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claim 39 above, and further in view of Holderer et al. (US Patent No. 6,392,824, Holderer hereinafter).

Regarding claim 57, although Schuster discloses that the optical element and the reinforcing element are connected (Figs. 1-6, optical element 2 and last optical

element 1 are connected), Schuster does not appear to explicitly describe wherein the connection is through soldering.

However, Holderer discloses connection by soldering (Fig. 1 and col. 2, lines 30-42, lens 1 is soldered to mounting 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included soldering as taught by Holderer to connect the optical element and the reinforcing element in the holding device as taught by Schuster since soldering is commonly used to connect an optical element with a supporter for the optical element because it is a strong and reliable connection technique that allows heat transmission through the connection.

Regarding claim 58, Schuster discloses wherein the optical element and the reinforcing element are connected and wherein the optical element and/or the reinforcing element are provided with a protective layer in the region of the connection (Fig. 3 and col. 3, lines 47-49, a layer of SiO₂ or Al₂O₃ is provided near the connection of elements 1 and 2). However, Schuster does not appear to explicitly describe wherein the connection is through soldering.

However, Holderer discloses connection by soldering with a protection layer in the region of the soldering connection (Fig. 1 and col. 2, lines 30-42, lens 1 is soldered to mounting 2 and protection layer 13 and protection layer 23 protect the lens 1 and mounting 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included soldering as taught by Holderer to connect the optical

element and the reinforcing element near the protection layer in the holding device as taught by Schuster since soldering is commonly used to connect an optical element with a supporter for the optical element because it is a strong and reliable connection technique that allows heat transmission through the connection.

13. Claims 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claim 39 above, and further in view of Medlock (US Patent No. 5,446,591).

Regarding claims 60 and 61, Schuster does not appear to explicitly describe wherein a seal or gasket is arranged between the mount and the reinforcing element.

However, Medlock discloses wherein a seal or gasket is arranged between the mount and the reinforcing element (Fig. 3, o-rings 24, 26 are between the supporting surfaces of mounting rings 11 and 13 that supports lens elements 21 and 23 and the outer portions of mounting rings 11 and 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included a seal as taught by Medlock between the mount and reinforcing element in the holding device as taught by Schuster since, as shown by Medlock, a seal is commonly used provide a leak-tight containment in a lens system (col. 1, lines 61-66).

Regarding claim 62, Schuster as modified by Medlock discloses wherein the seal or gasket is arranged in such a way that contact between the same and an

immersion medium is avoided (Medlock, Fig. 3, o-rings 24, 26 do not come into contact with liquids 81 and 82).

14. Claims 63-65, 67, 68, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claim 39 above, and further in view of Bruning et al. (US Patent No. 5,488,514, Bruning hereinafter).

Regarding claim 63, although Schuster discloses a reinforcing element is held inside a mount (Fig. 6, optical element 2 is held inside objective 10), Schuster does not appear to explicitly describe wherein the reinforcing element is held by an isostatic bearing.

However, Bruning discloses wherein the reinforcing element is held inside the mount by an isostatic bearing (Figs. 2, 3, and 8-10, and col. 2, lines 1-6, and col. 4, lines 27-53, flexible decoupling elements 25 form a bearing to hold the element, such as inner seat ring 45, that supports lens 20 inside annulus 13 such that deformations of the annulus are not transferred to the optical surface of elements 20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included an isostatic bearing as taught by Bruning between the mount and reinforcing element in the holding device as taught by Schuster since, as shown by Bruning, an isostatic bearing that holds a reinforcing element in a mount is commonly used to minimize vibrations (col. 2, lines 1-11 and col. 4, lines 40-53).

Regarding claim 64, Schuster as modified by Bruning discloses wherein the isostatic bearing has a plurality of, preferably three, elastic support points between the

reinforcing element and the mount (Bruning, Figs. 2-3 and col. 4, lines 27-53, the bearing is composed of flexible elements 25).

Regarding claim 65, although Schuster discloses a reinforcing element is fitted on a mount (Fig. 6, optical element 2 is held inside objective 10), Schuster does not appear to explicitly describe wherein the reinforcing element is fitted by a plurality of fastening elements.

However, Bruning discloses wherein a plurality of fastening elements fit the reinforcing element in the mount (Figs. 2, 3, and 8-10, and col. 4, lines 27-53, elements 25 fit the seating ring that supports a lens 20 in an annulus 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included a plurality of fastening elements as taught by Bruning to fit the reinforcing element in the mount in the holding device as taught by Schuster since, as shown by Bruning, a plurality of fastening elements that holds a reinforcing element in a mount is commonly used to minimize vibrations (col. 2, lines 1-11 and col. 4, lines 40-53).

Regarding claim 67, Schuster as modified by Bruning discloses wherein the fastening elements act on the neutral fiber of the reinforcing element (Bruning, Figs. 2-3 and 8-10, elements 25 are arranged symmetrically so that the center of the sealing ring would be acted on).

Regarding claim 68, although Schuster discloses a reinforcing element and a mount (Figs. 1-6, optical element 2 and mount of objective 10), Schuster does not

appear to explicitly describe wherein at least one elastic decoupling element is arranged between the mount and the reinforcing element.

However, Bruning discloses wherein at least one elastic decoupling element is arranged between the mount and the reinforcing element (Figs. 2-3 and 8-10, and col. 4, lines 27-53, flexible decoupling elements 25 are between annulus 13 and a seating ring).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included at least one elastic decoupling element as taught by Bruning between the mount and reinforcing element in the holding device as taught by Schuster since, as shown by Bruning, an elastic decoupling element that holds a reinforcing element in a mount is commonly used to minimize vibrations (col. 2, lines 1-11 and col. 4, lines 40-53).

Regarding claim 70, Schuster as modified by Bruning discloses wherein the elastic decoupling element has a plurality of coupling members that rest on a spherical surface of the reinforcing element (Bruning, Figs. 3 and 8-10, and col. 4, lines 27-53, flexible elements 25 are arranged on a spherical surface of the seating ring).

15. Claims 66 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as modified by Medlock as applied to claim 60 above, and further in view of Bruning.

Regarding claim 66, although Schuster as modified by Medlock discloses a reinforcing element is fitted on a mount (Schuster Fig. 6, optical element 2 is held inside

objective 10), Schuster does not appear to explicitly describe wherein the reinforcing element is fitted by a plurality of fastening elements.

However, Bruning discloses wherein a plurality of fastening elements fit the reinforcing element in the mount (Figs. 2 and 3 and col. 4, lines 27-53, elements 25 fit the seating ring that supports a lens 20 in an annulus 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included a plurality of fastening elements as taught by Bruning to fit the reinforcing element in the mount in the holding device as taught by Schuster as modified by Medlock since, as shown by Bruning, a plurality of fastening elements that holds a reinforcing element in a mount is commonly used to minimize vibrations (col. 2, lines 1-11 and col. 4, lines 40-53).

Regarding claim 69, although Schuster as modified by Medlock discloses a reinforcing element and a mount (Figs. 1-6, optical element 2 and mount of objective 10), Schuster does not appear to explicitly describe wherein at least one elastic decoupling element is arranged between the mount and the reinforcing element.

However, Bruning discloses wherein at least one elastic decoupling element is arranged between the mount and the reinforcing element (Figs. 2-3 and col. 4, lines 27-53, flexible decoupling elements 25 are between annulus 13 and a seating ring).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included at least one elastic decoupling element as taught by Bruning between the mount and reinforcing element in the holding device as taught by Schuster as modified by Medlock since, as shown by Bruning, an elastic decoupling element that

holds a reinforcing element in a mount is commonly used to minimize vibrations (col. 2, lines 1-11 and col. 4, lines 40-53).

16. Claims 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster as applied to claims 73 and 74 above, and further in view of Shibazaki (US PGPub 2001/0038500).

Regarding claims 79 and 80, Schuster does not appear to explicitly describe wherein a manipulation device is provided by means of which the optical element can be displaced along an optical axis and/or in a plane perpendicular to the optical axis, and/or can be tilted about an axis perpendicular to the optical axis.

Shibazaki discloses a manipulation device (control device 51 with actuators 50, Figs. 1-10) is provided by means of which the optical element can be displaced along an optical axis and/or in a plane perpendicular to the optical axis, and/or can be tilted about an axis perpendicular to the optical axis (Figs. 1-10 and para. [0070], actuators 50 tilt or move the lens 38a axially).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included a manipulation device to displace an optical element as taught by Shibazaki with an optical element in an objective as taught by Schuster since, as shown by Shibazaki, a manipulation device to displace an optical element is commonly used to correct aberrations (para. [0007]).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miura (JP58-90605) discloses using materials with the same coefficient of thermal expansion to support a lens without thermal fluctuations negatively impacting optical performance.

Kojima et al. (US Patent No. 4,433,897) discloses a ring that supports a lens.

Koeppel (CH 663674) discloses an optical element mounting with a coefficient of thermal expansion which is the same as that of the optical element.

Demerritt et al. (US Patent No. 5,274,502) discloses an optical element formed in one piece with a support for the optical element.

Holderer et al. (US Patent No. 5,991,101) discloses a lens composed of calcium fluoride or quartz and a mount element that has a coefficient of thermal expansion similar to that of the lens.

Merz et al. (US Patent No. 6,307,688) discloses a deformable inner ring with actuators to create forces in the lens.

Ebinuma et al. (US PGPub 2001/0039126) discloses that thermal expansion of the lens is the same as the surrounding support members.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Riddle whose telephone number is (571)270-7538. The examiner can normally be reached on Monday- Thursday 7:00-17:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter B. Kim/
Primary Examiner, Art Unit 2882

/C. R./
Examiner, Art Unit 2882